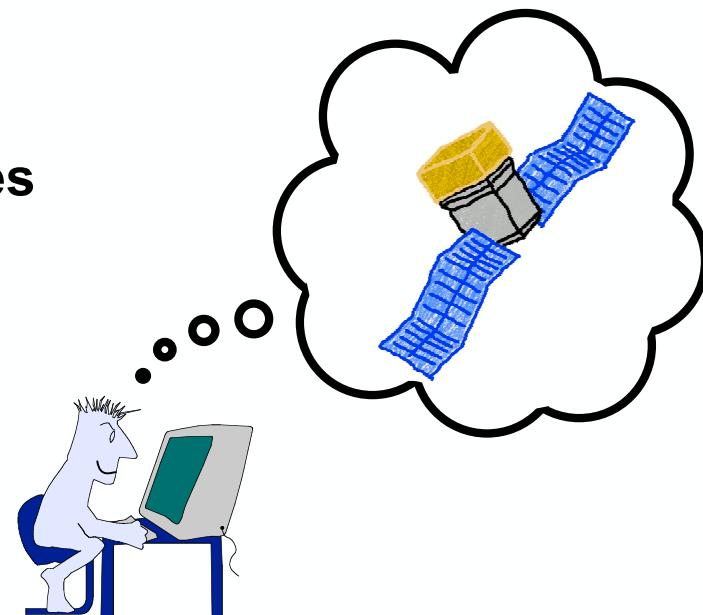
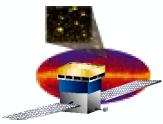


# Introduction to Gleam

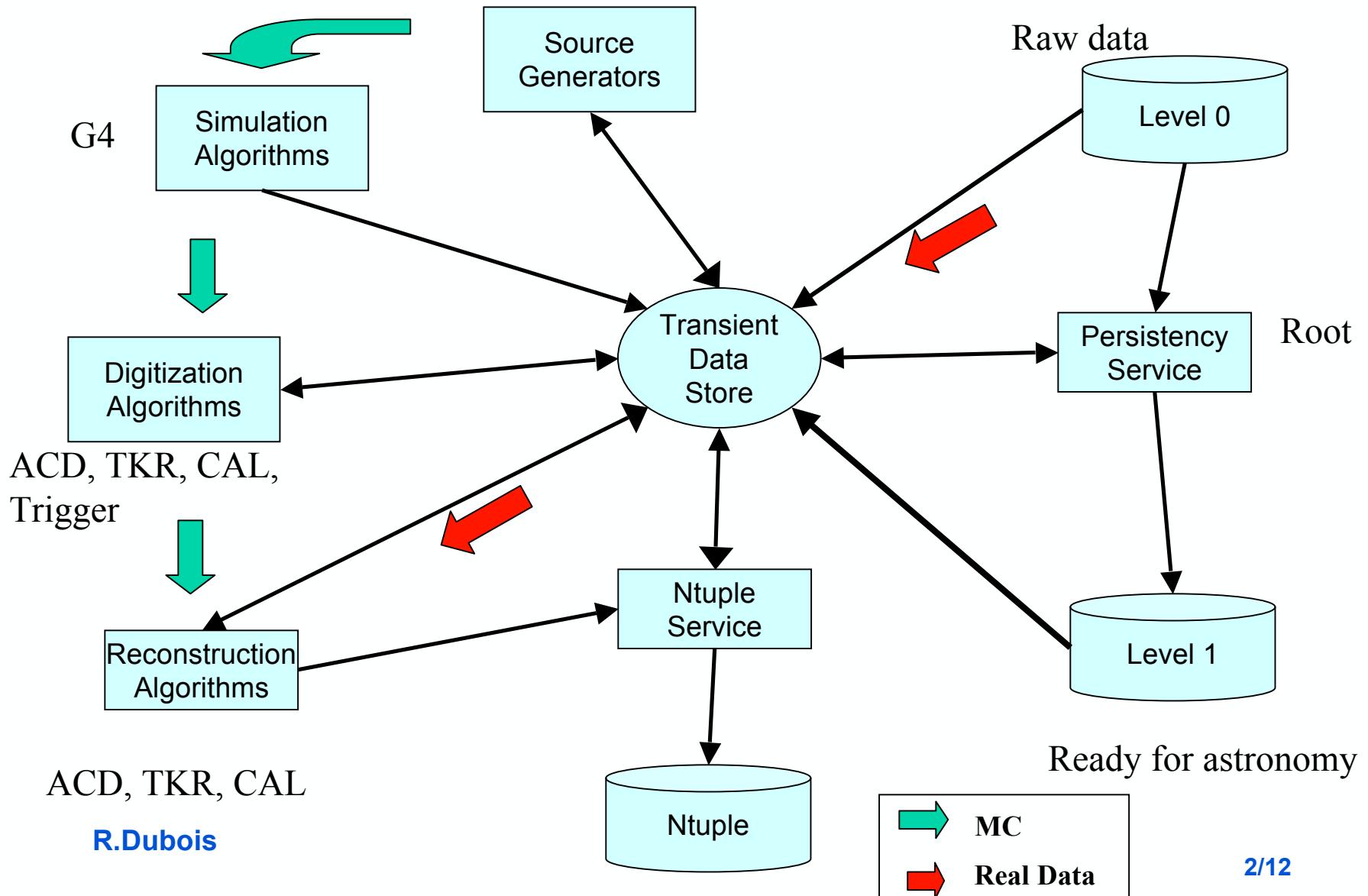
---

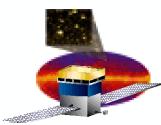
- Major release is imminent - end October
  - When
  - What to expect
- Quality Control
- Short & Longer term schedules





# Data flow in Gleam

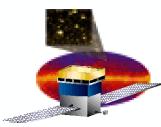




# Gleam Features

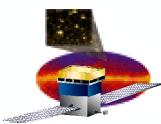
---

- G4 simulation
- Flexible geometry via xml
  - To handle flight, EM & CU
- Flexible job configuration via Gaudi jobOptions file
- New TKR recon/patrec
  - 3D combinatoric
  - New VTX finding
- Full Root I/O from MC, Digi and Recon
- Analysis possible from compiled code (“userAlg”) and Root output files/macros
- ACD digi updated; Recon has “active distance” to tracks
  - Distance to tile edges
- CAL digi updated
  - Option for non-linear light attenuation
- TKR digi has options for
  - Simple digi
  - “Bari” digi with TOT and charge sharing
    - Under test
- CAL recon leakage corrections being examined.



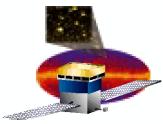
# Gleam Checklist for Oct Release

- Expect release ~ end Oct
  - Had detailed subsystem performance reviews beforehand – Oct 16. 
- ACD
  - Expected
    - rationalize row/column definition on top 
    - make tapes detectors
    - revised TDS output for Recon
    - supply 'real' PHA in MeV (ie not just MC pass-through) 
  - Not expected
    - efficiency maps across tile faces
- TKR
  - Expected
    - Bari (detailed) digis enabled; not default. 
    - iteration on the TDS definitions
    - add VTX info 
    - cleanup redundant variables 
    - relational tables between digis/clusters 
  - Desired
    - add some simple TOT, diffusion simulation in TkrSimpleDigiAlg. 



# Checklist (cont'd)

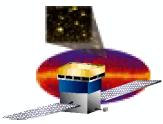
- CAL
  - Expected
    - correct position errors
  - Desired
    - recalculation of profile and last-layer correlation leakage corrections
    - complete recalc is unlikely; thinking about interim solution.
- G4/G4Generator
  - Expected
    - option to trim MC tree to remove CAL shower particles in "full" mode
    - "slab" test program to look at E-loss, multiple scattering etc in simple geometry
  - Desired
    - evaluate G4.41 relative to G4.32 to allow migration to later version for this release
    - Range cutoffs by region
- Merit
  - Expected
    - Tail cuts for PSF
    - initial set of PSF/Aeff ntuple variables in place
  - Utilities
    - Expected
      - Relational table upgrade
      - Randoms control per shareable, reseedable per event
      - first system tests in place
    - Desired
      - persistent version of relational tables
  - Doc/User Guide
    - Already have an initial guide



# Getting and Keeping It Right

---

- **Code Walkthroughs**
  - Subject all packages to periodic review
    - Seven done this year!
  - Coding & doc rules, etc.
  - Many sets of eyes looking at code
    - Two-way street – benefits to reviewers and ees.
- **Performance Reviews**
  - Prior to releases – first one done for upcoming v3 release
  - Subsystems show why they think their code is working
- **Nightly builds**
  - Anticipate and head off problems coming from the development areas
  - Build all tags, and HEADs of all packages
  - Run unit tests – notify package owners if problems found
- **System tests**



http://www.slac.stanford.edu/exp/glast/ground/software/RM/Gleam.html - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Home Search Favorites Media Links

Address http://www.slac.stanford.edu/exp/glast/ground/software/RM/Gleam.html Go Links

Google Search Web Search Site PageRank Page Info Up Highlight

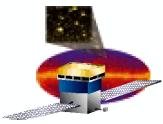
Gleam tags

version	checkout	compile	tests	date
v2r5p2	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-10-18 00:02:35
v2r5p1	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-10-15 00:02:30
v2r5	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">19/20</a>	2002-10-11 00:02:35
v2r4	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">19/20</a>	2002-10-10 00:02:42
v2r3p3	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-10-06 00:02:20
v2r3p2	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-10-04 00:02:46
v2r3p1	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-09-27 00:02:32
v2r3p0	<a href="#">fail</a>	-	0/0	2002-09-26 00:01:58
v2r3	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-09-18 00:33:26
v2r2p11	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-09-13 00:53:46

Gleam HEADs

version	checkout	compile	tests	date
HEAD-292	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-10-20 00:02:50
HEAD-291	<a href="#">ok</a>	<a href="#">ok</a>	<a href="#">20/20</a>	2002-10-19 00:03:03
HEAD-				2002-10-18

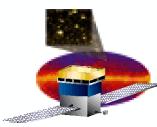
Nightly build summary



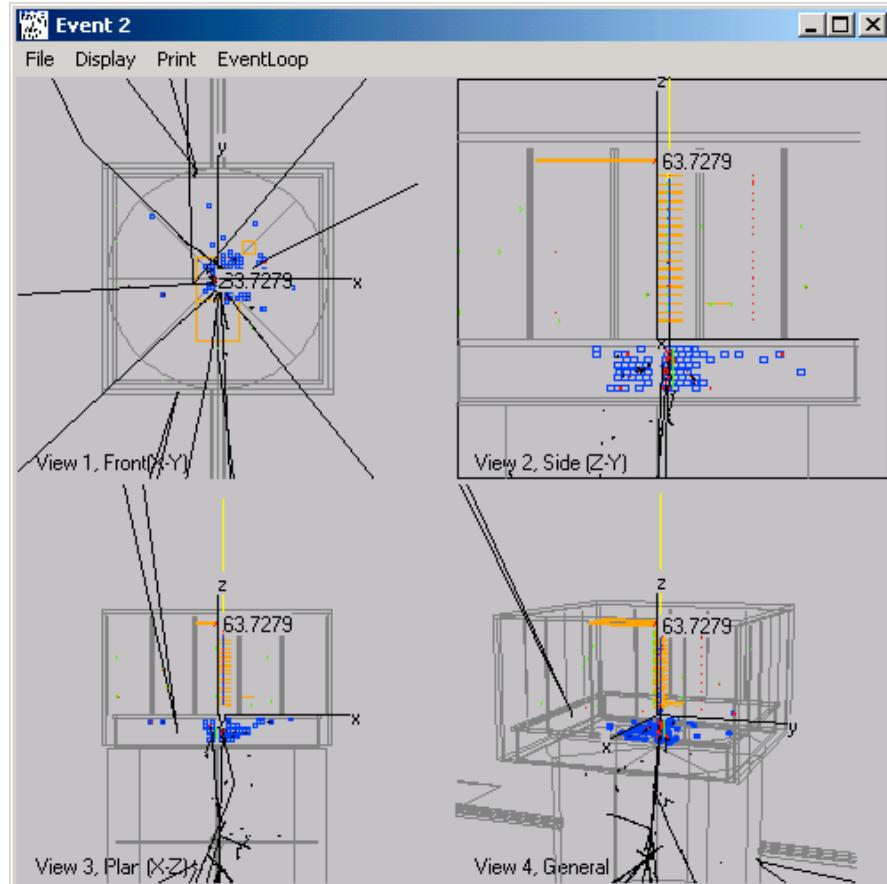
# Ad for System Tests Facility

---

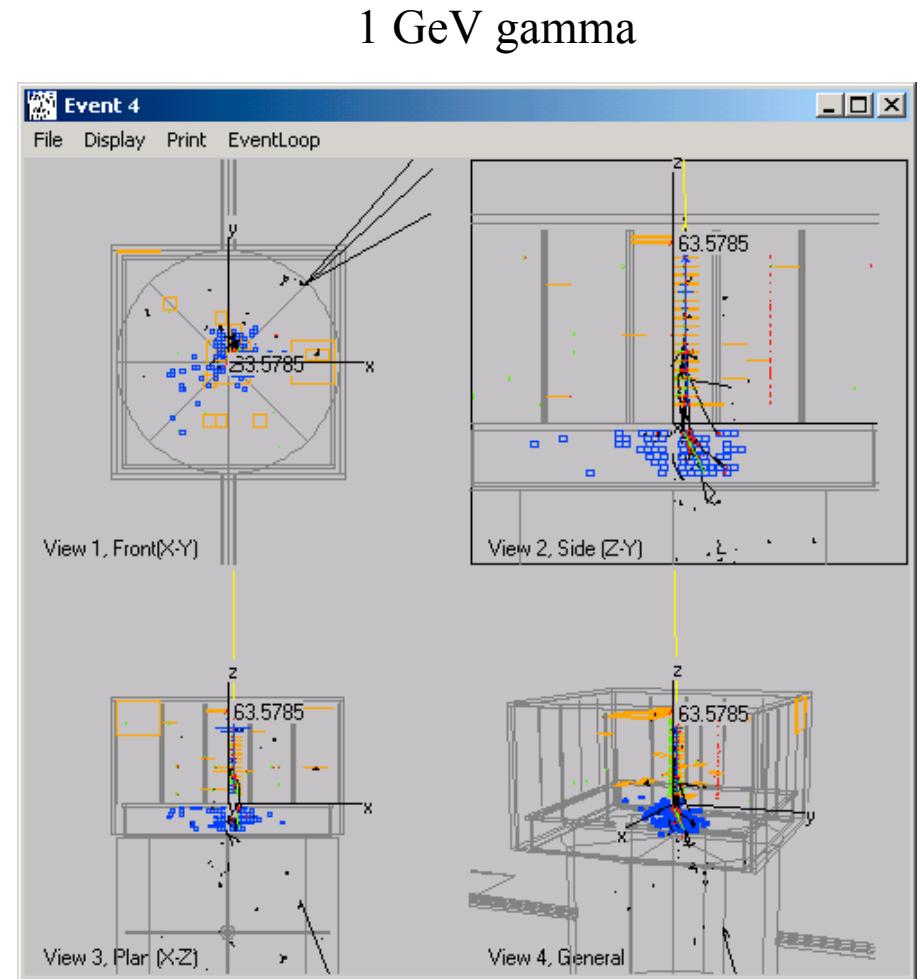
- **Comprehensive tests producing histograms & diagnostic statistics**
- **A subset of the suite a subsystem would have for its own performance reviews**
- **Multiple test configurations possible**
- **Run on tags and releases**
- **Tracked in database with web plotting display capabilities**
- **Comparison to standards (deemed 'correct' by package owners)**
- **Tests to be discovered and run automatically by the code Release Manager**
  - **will capture results for the db**



# Tests, Tests, Tests

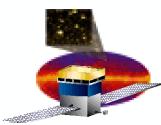


10 GeV proton



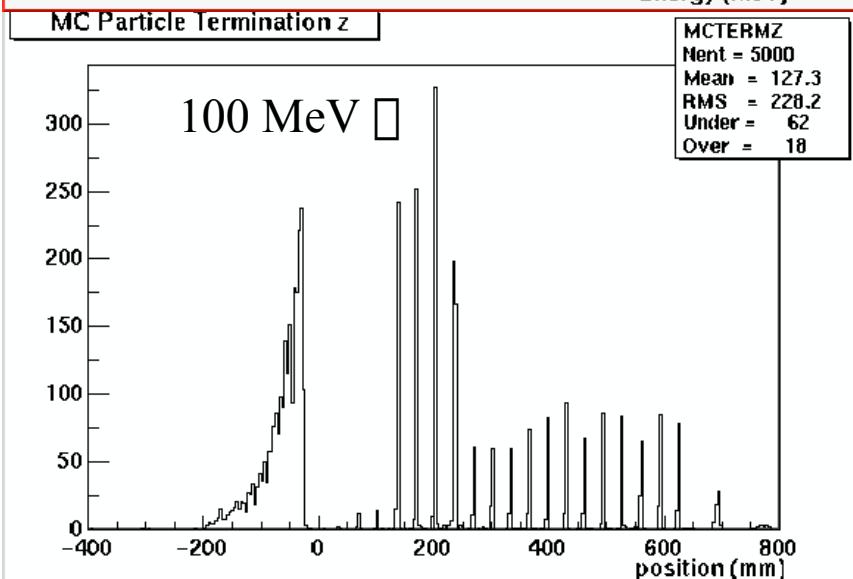
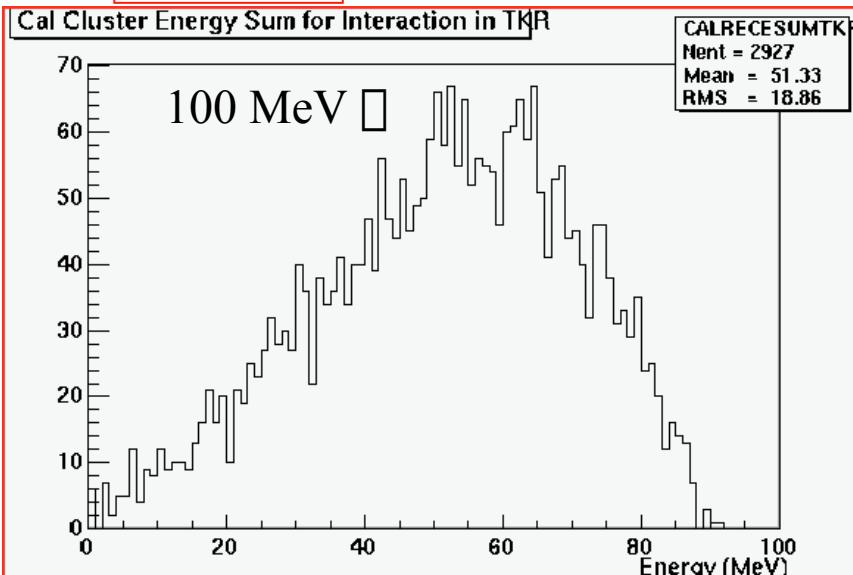
1 GeV gamma

Use muons, gammas and protons at different energies and angles as test configurations: GLAST covers 20 MeV to 300 GeV!



# More Tests, Tests, Tests

## Detailed plots



## Time, memory usage

CPU time : 17056.34 sec.  
Max Memory : 97 MB  
Max Swap : 120 MB

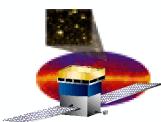
TkrReconAlg:exe... INFO Time User : Tot= 47[min]  
Ave/Min/Max= 1.81(+- 11.8)/ 0/ 268 [s] #=1557

G4Generator:exe... INFO Time User : Tot= 110[min]  
Ave/Min/Max= 1.31(+- 8.14)/ 0/ 126 [s] #=5000

ChronoStatSvc INFO Time User : **Tot= 165[min]** #= 1  
\*\*\*\*\*Chrono\*\*\*\*\* INFO

## Reconstruction performance metrics: resolution and efficiency

-----  
Layers 12-15 Events used : 973  
eff. proj. sigma : 4.08 deg = 245 arc-min  
68% contained : 6.85 deg = 1.11\*(1.51\*sigma)  
95% contained : 18.1 deg = 1.81\*(2.45\*sigma)  
Energy: meas/gen : 0.527  
std : 0.196  
events w/ no data : 20  
effective area : 5838 cm<sup>2</sup>  
Figure of merit : 1074 cm  
-----  
total effective area : 12066 cm<sup>2</sup>  
Combined FOM : 2409 cm



# Prototype Web Interface

The screenshot displays three windows illustrating the Prototype Web Interface:

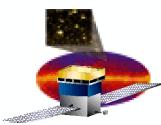
- Metadata Values window:** Shows the title "The Metadata Values for GLEAM version 1 are:" followed by:
  - Test Type: RELEASE
  - Test Name: ALL\_GAMMA\_TEST\_1A table titled "Values" lists:

Info Label	Info Value
MEAN	3.5
SIGMA	1.6
NUM_ENTRIES	1000
- Histogram Display window:** Shows the title "Display histograms stored in a root file". It includes:
  - A dropdown menu "Choose the histogram" set to "CALADC".
  - Two radio buttons: "Draw Histogram" (selected) and "Compare to Standard".
  - A dropdown menu "Choose a Standard" set to "default".
  - A "Display Histogram" button.
- Resulting Histogram Plot window:** Shows a histogram titled "Cal Digi ADC - both faces". The plot area has a red background. A legend box in the top right corner displays:

CALADC
Nent = 7698
Mean = 338.6
RMS = 91.09

Annotations with arrows point from the interface elements to callout boxes:

- An arrow points from the "Display Histogram" button to a box labeled "Scan histogram file and plot on demand".
- An arrow points from the "Done" button in the bottom-left window to a box labeled "Built using Oracle interface".
- An arrow points from the "Done" button in the bottom-right window to the same "Built using Oracle interface" box.



# 6-Month Schedule

